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Case Report

Traumatic acute myocardial infarction due to the blunt mid-chest trauma during ice-hockey game

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ABSTRACT

A case of acute myocardial infarction caused by coronary artery dissection with subsequent thrombosis due to a blunt chest trauma during an ice hockey game is described. Diagnosis by CT angiography and coronary angiography was followed by successfull stent implantation. Similar cases published in the literature are discussed.

Blunt chest trauma may occasionally cause severe cardiac injury. Most cardiac complications in chest trauma are due to myocardial or aortic contusion rather than direct damage to the coronary arteries. Acute myocardial infarction caused by coronary thrombosis due to the blunt chest trauma was first described in 1954 [1]. Besides traumatic thrombosis, an acute coronary dissection may also be a results of blunt chest trauma [2]. Both causes (traumatic dissection and thrombosis) frequently coexist. A single case of external coronary compression by epicardial hematomas involving separately left and right coronary arteries and the coronary sinus (without coronary and/or aortic dissection) was described as another possible mechanism of traumatic infarction. In this case, trauma resulted from an airbag during a non-major car accident [3].

Several sport activities, in which blunt chest trauma as a cause of myocardial infarction can occur, have been described—including soccer shot impact to the chest [4], motocross collision [5], ice hockey [6], etc. Traumatic ventricular septal defect [7] and left ventricular pseudoaneurysm [8] have been described even in children.

The diagnosis is frequently not suspected and thus missed due to the young age of these patients [9]. This was also case during the initial phase in our patient. A healthy young man (38 years, 100 kg/181 cm) with negative family history and without risk factors (active sportsman, non-smoker) sufferred a hard strike into the mid-chest during an ice-hockey game on January 7, 2011. Immediately he developed severe nausea with vomiting and dyspnea. He was admitted to the trauma surgery department. The chest X-ray was negative, first troponin I was also negative and acute thoracic CT excluded aortic dissection, found small pulmonary contusion, coronary arteries were non-evaluable, myocardium was not described. Next day he developed recurrent chest pain, troponin I rise was observed (from 0,2 to 22,9 μg/l).

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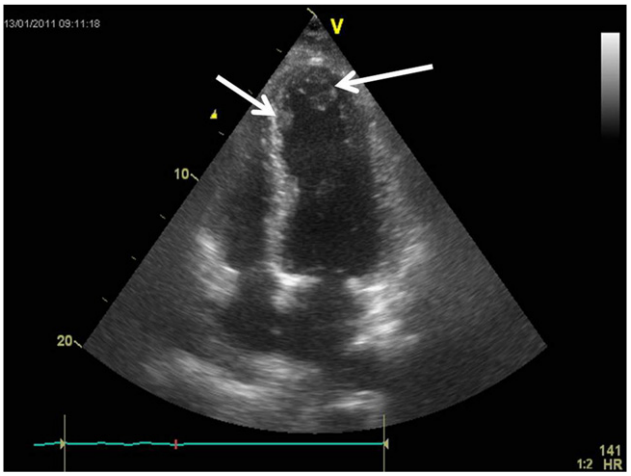

Fig. 1 – Echocardiohraphy: apical four-chamber view showing two of the three mobile left ventricular thrombi.

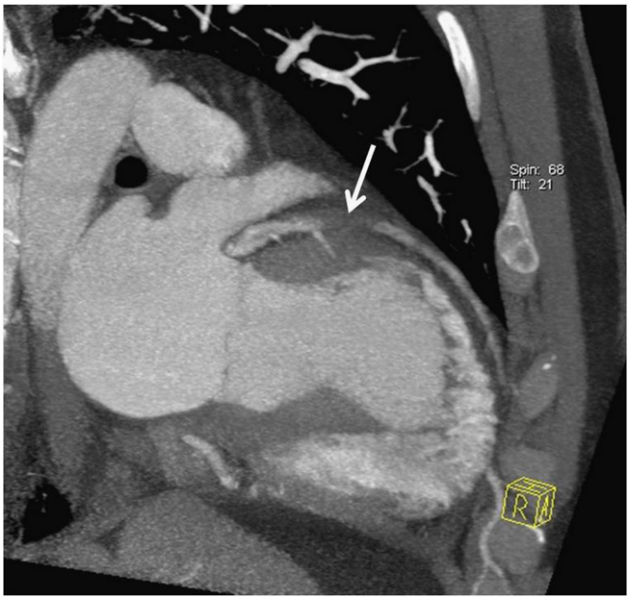

Fig. 2 – Coronary CT angiography with left ventricular opacification showing proximal LAD occlusion.

ECG showed pathologic Q waves (completed anterior infarction), echocardiography anteroseptal–apical hypokinesis and three "malignant" (mobile) left ventricular apical thrombi (Fig. 1). Patient was transferred from surgery to cardiology departement. During the transfer his symptoms completely resolved. Coronary CT angiography revealed proximal left anterior descending coronary artery occlusion (Fig. 2). This was confirmed by invasive coronary angiography. Ad-hoc percutaneous coronary intervention was successfull and a drug eluting stent 4,0/24 mm was implanted with optimal result (Fig. 3).

Due to the mobile left ventricular thrombi, the patient was kept in the hospital for 3 weeks on full dose enoxaparin+aspirin+clpidogrel with regular echocardiographic and laboratory controls. During this period the thrombi partially resolved and partially stabilized, so the patient was discharged home on January 28, 2011.

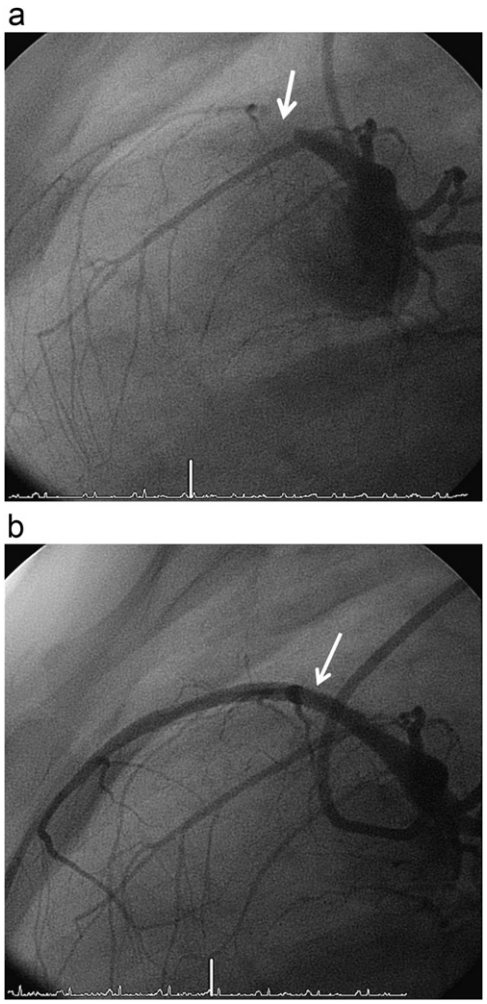

Fig. 3 – (a) Coronary angiography, lateral view: LAD complete occlusion just next to a major septal branch. (b) Coronary angiography, the same view after successfull stent implantation.

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